

CLAIMS

1. A peptide having a sequence comprising or consisting of QPLALEGSLQK.
- 5 2. A peptide selected from the group consisting of
GGGPGAGSLQPLALEGSLQK, GSLQPLALEGSLQKRGIV, and
QPLALEGSLQKRGIVEQ
- 10 3. The peptide having the sequence GSLQPLALEGSLQKRGIV.
4. The peptide having the sequence GGGPGAGSLQPLALEGSLQKRGIVEQ
5. A peptide according to any of claims 1 to 4, in combination with one or more
peptides having a sequence selected from
15 LAKEWQALCAYQAEPNTCATAQGEGNIK,
KLKVESSPSRSDYINASPIIEHDP, and SFYLKNVQTQETRTLTLQFHF.
6. A peptide or peptide combination according to any of the preceding claims,
comprising a peptide or peptides differing from those specified by up ~~to~~ and
20 including 4 amino acid alterations (substitution and/or deletion and/or
insertion) or one which is extended from any one of the above-mentioned
residues at the N-terminus or C-terminus or both with one or more non-wild-
type amino acid sequences.
- 25 7. A peptide according to any of claims 1-6 in combination with either
 - a. IA-2 752-75
 - b. IA-2 853-72
 - c. IA-2 709-36
 - d. IA-2 752-75 and IA-2 853-72
 - 30 e. IA-2 709-36 and IA-2 752-75
 - f. IA-2 709-36 and IA-2 853-72, or

g. IA-2 709-36 and IA-2 752-75 and IA-2 853-72

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8. A pharmaceutical composition comprising a peptide or peptide combination according to any of claims 1 to 7, for the therapy of Type 1 diabetes.
9. A pharmaceutical composition according to claim 8, in which the peptide or each peptide is conjugated or otherwise combined with a tolerance-promoting adjuvant or tolerance promoting cells.
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10. A diagnostic method or kit for diagnosis of, or determination of a predisposition to, Type 1 diabetes, comprising a peptide or peptide combination according to any of the preceding claims.
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11. A method of treatment or prevention of Type 1 diabetes, in which a peptide or combination of peptides according to any of claims 1 to 7 is administered by parenteral or oral or topical routes, including intradermal, subcutaneous or intravenous injection, or nasally or orally or epicutaneously..
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12. A method according to claim 11, in which the peptide or each peptide in a combination of peptides is administered in an amount of up to about 1mg or more per single dose.
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13. A method according to claim 12, in which the peptide or each peptide in a combination of peptides is administered in an amount of from about 0.5 to about 500 micrograms or more per single dose.
14. A method according to claim 13, in which a single dose contains from 5 to 250 μg of the, or each, peptide e.g. 5, 50, or 250 μg .

15. A method according to any of claims 10 to 14, in which the peptide or combination is administered in conjunction with a tolerance-promoting adjuvant or tolerance promoting cells.
- 5 16. A method of measuring the state of immunological tolerance of a patient to beta cells which comprises the following steps:-
- a. Extracting the patient's peripheral blood mononuclear cells
 - b. Culturing these cells with any of the peptides or peptide combinations
10 above
 - c. Applying a cytokine ELISPOT analysis to the cultured cells in order to quantitate the cellular production of cytokines eg interferon- γ and interleukin-10.
- 15 17. A method according to claim 16, in which the patient's immunological tolerance to beta cells is demonstrated by the presence of an increased number of interleukin-10 producing cells and a reduced number of interferon- γ producing cells.